Fig. 1
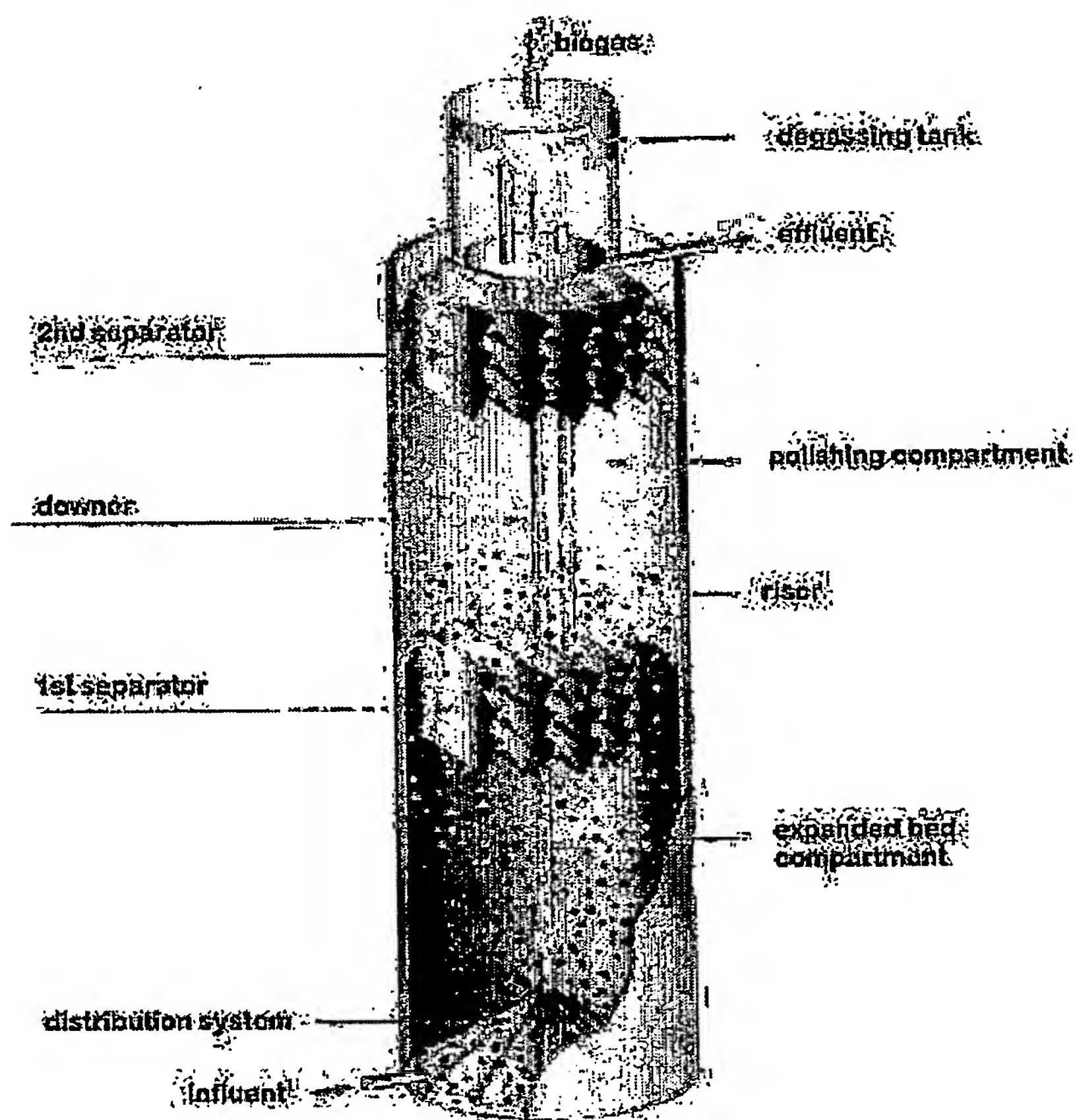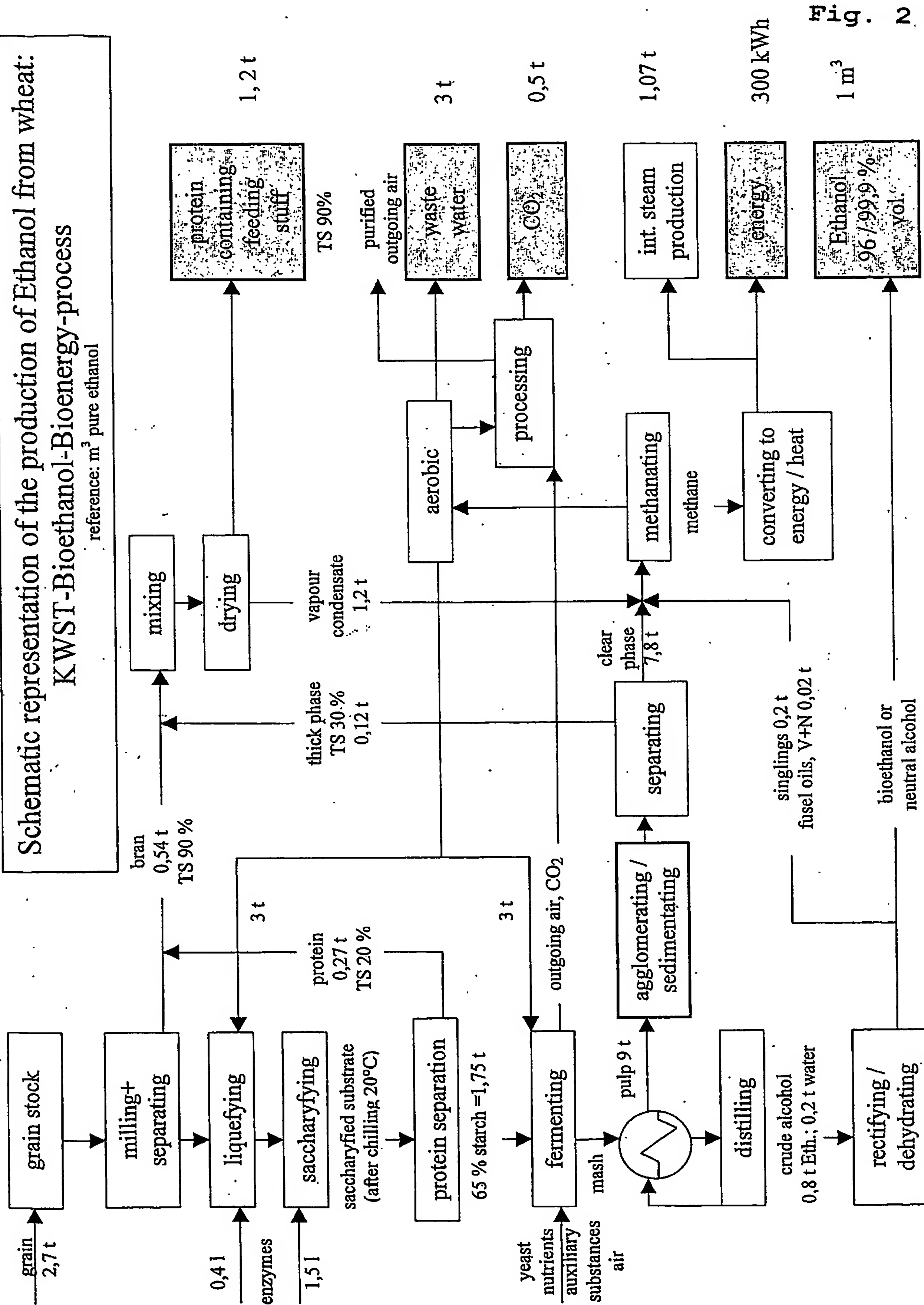
Fig. 2

Schematic representation of the production of Ethanol from wheat:
KWST-Bioethanol-Bioenergy-process
reference: m³ pure ethanol

Wilkening-Ethanol-Process

Amounts in relation to 1 m³ ethanol

Fig. 3

grain 2,8t → mill

2,2t flour

bran 0,6t

liquefying saccharifying ← process water 6t

fermenting ← process water 3t

destilling rectifying drying → 1m³ → ethanol 99,9 %

singlings first and last running 0,45m³

agglomerating/ sedimenting

decanting

solid phase 1,6t

clear phase 7,4m³

drying ← fresh steam

1,15m³ → methanol reactor → aerobic processing → purified waste water

7500MJ

DDGS 1,07t

combined heat and power generation → energy 620kWh

steam 2,25t